FCC CFR47 PART 15 SUBPART B
ICES-003 ISSUE 4, 2004-02

CERTIFICATION TEST REPORT

FOR

850/900/1800/1900/2100 USB MODEM

MODEL NUMBER: COMPASS 888

FCC ID: N7NC888

REPORT NUMBER: 08U11897-2C

ISSUE DATE: SEPTEMBER 25, 2008

Prepared for
SIERRA WIRELESS, INC.
13811 WIRELESS WAY
RICHMOND, BC V6V 3A4, CANADA

Prepared by
COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/15/08	Initial Issue	T. Chan
A	07/18/08	Revised Model Name, FCC ID and IC ID	A. Zaffar
B	08/07/08	Revised Model Name, FCC ID and IC ID	A. Zaffar
C	09/25/08	Added FCC ID to report	A. Zaffar

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SIERRA WIRELESS, INC.
13811 WIRELESS WAY
RICHMOND, BC V6V 3A4, CANADA

EUT DESCRIPTION: 850/900/1800/1900/2100 USB MODEM

MODEL: COMPASS 888

FCC ID: N7NC888

SERIAL NUMBER: S7411280028E1-0C

DATE TESTED: JUNE 23, 2008

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART B	PASS
ICES-003 ISSUE 4, 2004-02	PASS

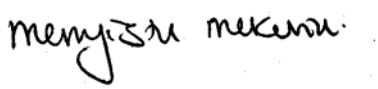
Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHEN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003 and ICES-003 ISSUE 4, 2004-02.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a multi-band wireless modem that operates on the GSM/GPRS/EDGE/UMTS network. The EUT manufactured by Sierra Wireless, Inc.

GENERAL INFORMATION

CHASSIS MATERIAL	PLASTIC
ENCLOSURE MATERIAL	PLASTIC
POWER REQUIREMENTS	5VDC from USB port
POWERLINE FILTER MANUFACTURER AND MODEL	N/A
HIGHEST FREQUENCIES USED OR GENERATED	3.9796 GHz

5.2. WORST CASE CONFIGURATIONS

Based on past experience, the worst-case configuration was determined to be EUT connected via USB cable. Then all tests have done with this configuration, i.e. EUT connected to a laptop via USB cable.

5.3. MODE(S) OF OPERATION

Mode	Description
Receiving & EMCTest	The EUT was in a receiving mode, while all the I/O ports active to transfer data between the laptop and other peripherals.

5.4. SOFTWARE AND FIRMWARE

The test software used during the test was EMCTest software.

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT & PERIPHERALS

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	LATITUDE D620	(01)07898349890528	DoC
Laptop AC Adapter	Dell	LA65NS0-00	CN-0DF263-71615-66C-2E23	DoC
Printer	Microline 186	D22300A	AC5C018494A0	DoC
Modem	Hayes	4714US	A02247143261	BFJUSA-31719-M5-E
Modem AC Adapter	AMPLUS	982SLU	9900993	DoC
Mouse	Dell	0YH958	HC7030G04KT	DoC

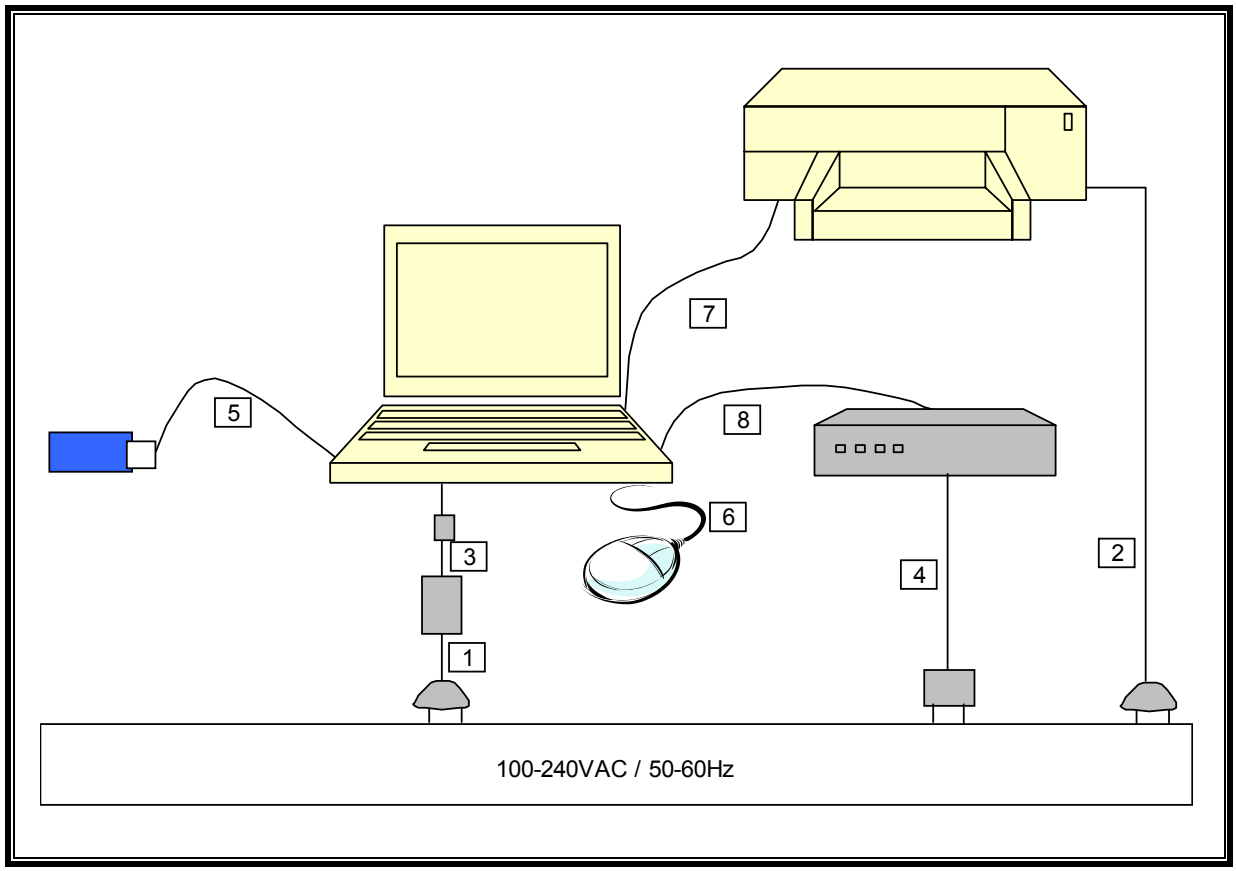
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC Input	1	3-Prong	Un-Shielded	2.0 m	N/A
2	AC Input	1	2-Prong	Un-Shielded	2.0 m	N/A
3	DC Input	1	Mini-Jack	Un-Shielded	2.0 m	Ferrites on Cradle and PC Ends
4	DC Input	1	Mini-Jack	Un-Shielded	2.0 m	N/A
5	USB	1	USB	Shielded	4.0 m	N/A
6	USB	1	USB	Shielded	2.0 m	N/A
7	USB	1	USB	Shielded	2.0 m	N/A
8	Sierial	1	DB9	Shielded	1.0 m	N/A

TEST SETUP

The EUT is installed into a laptop via USB cable, and test software exercised the EUT.

TEST SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	7/15/1905	10/25/2008
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/25/2008
EMI Test Receiver	R & S	ESHS 20	827129/006	8/6/2009
Spectrum Analyzer, 6.5GHz	Agilent / HP	8595E	3431A00781	9/20/2008
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	US42070220	5/30/2009
Preamplifier	HP	8447D	1937A02062	3/31/2009
Preamplifier, 1 ~ 26.5 GHz	HP	8449B	3008A00369	9/27/2008
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2009
Antenna, Bilog 30MHz ~ 2Ghz	Sunol Sciences	JB1	A121003	9/28/2008

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 3.9796 GHz. Therefore the frequency range was investigated from 30 MHz to 20 GHz.

LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dBµV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

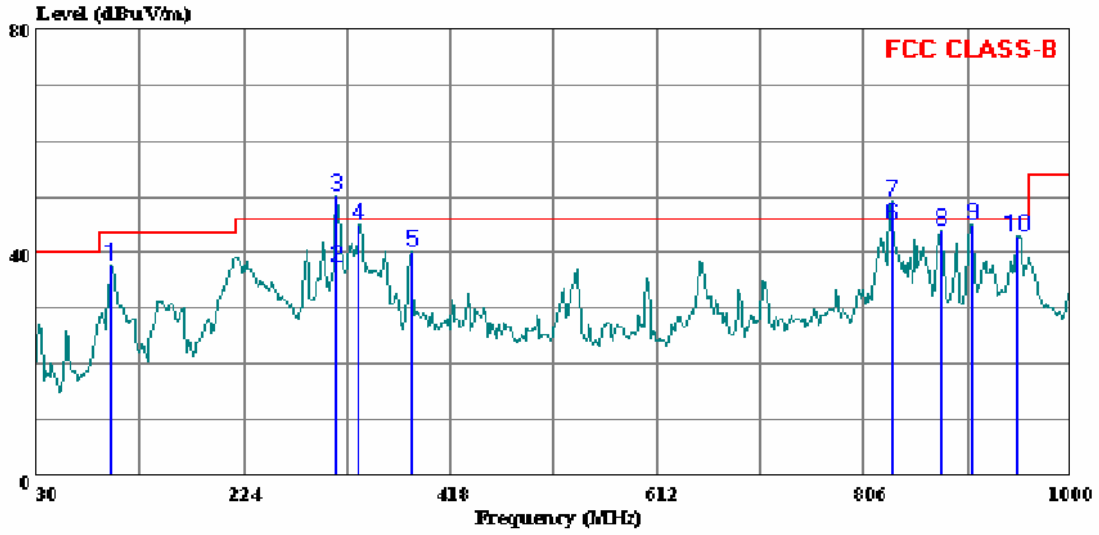
RESULTS

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 08U11897_EMI.EMI Date: 06-23-2008 Time: 21:30:37



Trace: 5 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Mengistu Mekuria
Project #: : 08U11897
Company: : Sierra Wireless
Configuration:: EUT and Support Equipment
Mode : : Normal Mode
Target: : FCC Class B

HORIZONTAL DATA

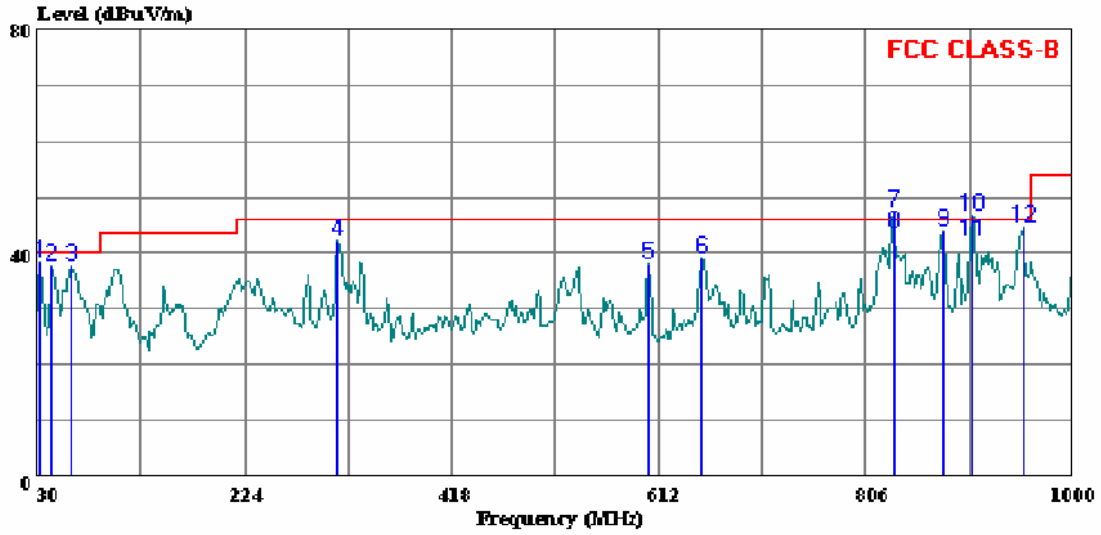
		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		99.840	58.53	-20.75	37.78	43.50	-5.72	Peak
2		310.330	53.15	-15.60	37.55	46.00	-8.45	QP
3	*	310.330	65.82	-15.60	50.22	46.00	4.22	Peak
4		332.640	60.14	-14.99	45.15	46.00	-0.85	Peak
5		381.140	54.07	-13.74	40.33	46.00	-5.67	Peak
6		832.190	51.30	-6.21	45.09	46.00	-0.91	QP
7	*	832.190	55.33	-6.21	49.12	46.00	3.12	Peak
8		877.780	49.47	-5.43	44.04	46.00	-1.96	Peak
9		906.880	49.87	-4.88	44.99	46.00	-1.01	Peak
10		950.530	46.90	-3.98	42.92	46.00	-3.08	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 4 File#: 08U11897_EMI.EMI Date: 06-23-2008 Time: 21:10:01



Trace: 2 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Mengistu Mekuria
Project #: : 08U11897
Company: : Sierra Wireless
Configuration:: EUT and Support Equipment
Mode : : Normal Mode
Target: : FCC Class B

VERTICAL DATA

		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		31.940	48.30	-10.01	38.29	40.00	-1.71	Peak
2		43.580	55.75	-18.14	37.61	40.00	-2.39	Peak
3		61.040	60.84	-23.14	37.70	40.00	-2.30	Peak
4		310.330	57.80	-15.60	42.20	46.00	-3.80	Peak
5		601.330	47.92	-9.76	38.16	46.00	-7.84	Peak
6		652.740	48.38	-9.21	39.17	46.00	-6.83	Peak
7	*	832.190	53.51	-6.21	47.30	46.00	1.30	Peak
8		832.190	49.80	-6.21	43.59	46.00	-2.41	QP
9		877.780	49.33	-5.43	43.90	46.00	-2.10	Peak
10	*	904.940	51.72	-5.01	46.71	46.00	0.71	Peak
11		904.940	47.40	-5.01	42.39	46.00	-3.61	QP
12		953.440	48.37	-3.85	44.52	46.00	-1.48	Peak

SPURIOUS EMISSIONS ABOVE 1000 MHz (WORST-CASE CONFIGURATION)

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: SIERRA WIRELESS
Project #: 08U11897
Date: 6/23/2008
Test Engineer: MENGSITU MEKURIA
Configuration: EUT AND SUPPORT EQUIPMENT
Mode: NORMAL

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		A-5m Chamber		

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.187	3.0	51.4	43.4	26.2	3.2	-39.2	0.0	0.0	41.7	33.6	74	54	-32.3	-20.4	H
1.307	3.0	53.8	33.7	26.5	3.4	-39.1	0.0	0.0	44.7	24.6	74	54	-29.3	-29.4	H
1.470	3.0	62.5	40.1	27.0	3.6	-38.8	0.0	0.0	54.3	31.9	74	54	-19.7	-22.1	H
1.500	3.0	64.1	42.0	27.1	3.7	-38.8	0.0	0.0	56.0	33.9	74	54	-18.0	-20.1	H
1.543	3.0	62.5	37.2	27.2	3.7	-38.7	0.0	0.0	54.7	29.3	74	54	-19.3	-24.7	H
1.833	3.0	55.4	34.8	27.9	4.1	-38.3	0.0	0.0	49.2	28.6	74	54	-24.8	-25.4	H
2.010	3.0	50.4	31.2	28.4	4.3	-38.0	0.0	0.0	45.0	25.9	74	54	-29.0	-28.1	H
1.187	3.0	55.1	48.2	26.2	3.2	-39.2	0.0	0.0	45.4	38.5	74	54	-28.6	-15.5	V
1.307	3.0	54.8	32.1	26.5	3.4	-39.1	0.0	0.0	45.7	23.0	74	54	-28.3	-31.0	V
1.470	3.0	68.0	45.9	27.0	3.6	-38.8	0.0	0.0	59.8	37.7	74	54	-14.2	-16.3	V
1.500	3.0	66.6	44.3	27.1	3.7	-38.8	0.0	0.0	58.5	36.2	74	54	-15.5	-17.8	V
1.543	3.0	64.3	36.9	27.2	3.7	-38.7	0.0	0.0	56.5	29.0	74	54	-17.5	-25.0	V
1.833	3.0	58.1	34.8	27.9	4.1	-38.3	0.0	0.0	51.9	28.5	74	54	-22.1	-25.5	V
2.010	3.0	52.1	32.7	28.4	4.3	-38.0	0.0	0.0	46.8	27.4	74	54	-27.2	-26.6	V
2.613	3.0	54.7	31.9	29.8	5.0	-37.4	0.0	0.0	52.0	29.2	74	54	-22.0	-24.8	V

Rev. 4.12.7

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

7.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.4

LIMIT

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

RESULTS

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.17	53.06	--	43.78	0.00	65.01	55.01	-11.95	-11.23	L1
0.23	47.38	--	37.92	0.00	62.31	52.31	-14.93	-14.39	L1
3.80	44.56	--	30.02	0.00	56.00	46.00	-11.44	-15.98	L1
0.17	54.46	--	43.09	0.00	65.01	55.01	-10.55	-11.92	L2
0.23	47.94	--	37.22	0.00	62.49	52.49	-14.55	-15.27	L2
4.09	46.09	--	30.95	0.00	56.00	46.00	-9.91	-15.05	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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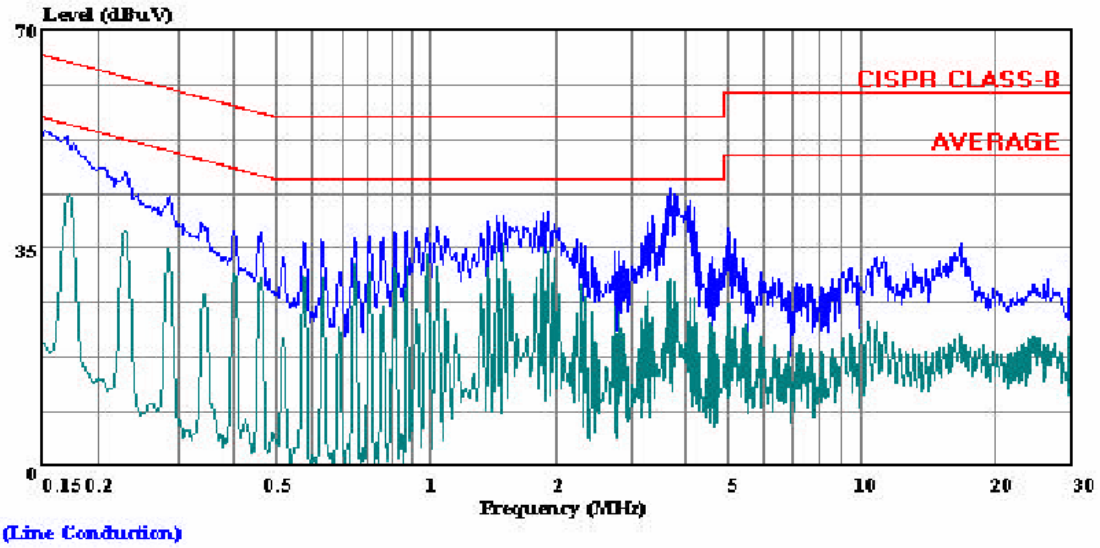


(Line Conduction)

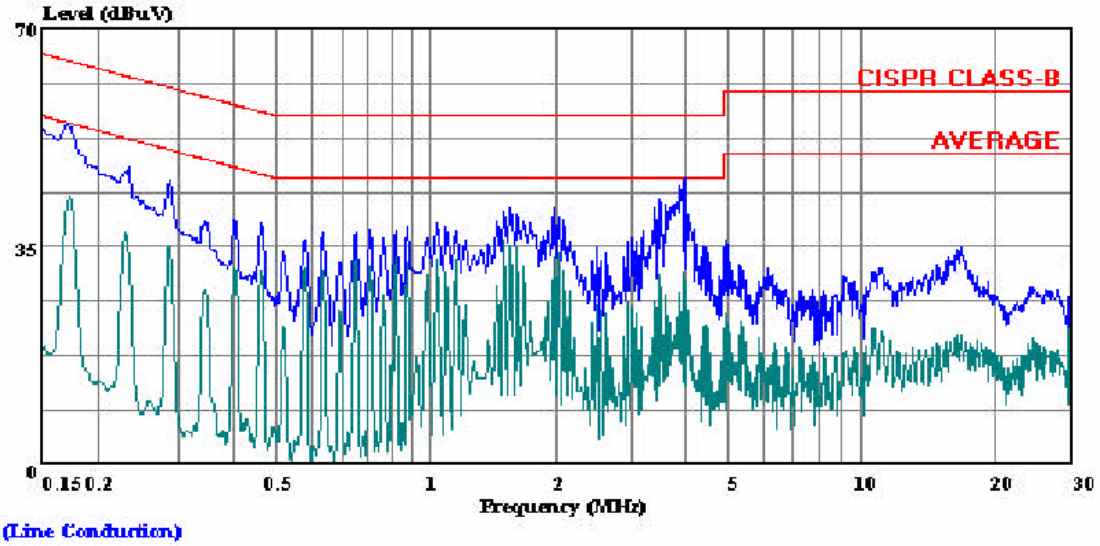
Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Mengistu Mekuria
Project #: : 08U11897
Company: : Sierra Wireless
Configuration:: EUT and Support Equipment
Mode: : Normal
Target: : FCC Class B
Voltage: : 115VAC 60Hz
: L1: Peak (Blue); Average (Green)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 08U11897 LC.EMI Date: 06-23-2008 Time: 19:11:17



(Line Conduction)

Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Mengistu Mekuria
Project #: : 08U11897
Company: : Sierra Wireless
Configuration:: EUT and Support Equipment
Mode: : Normal
Target: : FCC Class B
Voltage: : 115VAC 60Hz
: L2: Peak (Blue); Average (Green)